REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1, and 3-24 are pending active examination. Claims 1 and 24 are amended to provide a clearer presentation of the claimed subject matter. Applicant submits that no new matter has been added. Claim 2 is canceled without prejudice or disclaimer. Claims 25-31 are withdrawn from consideration as being drawn to non-elected inventions. No new claims have been added.

In the outstanding Office Action, the Examiner has rejected Claims 1-24 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner has rejected Claims 1, 3-13, 15-16, 18, and 21-24 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over World Application Publication Serial No. WO 03/0112567 to Mitrovic et al. (hereinafter Mitrovic et al.). The Examiner has rejected Claims 1, 3-13, 15, 18, and 21-24 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,026,896 to Hunter (hereinafter Hunter) in view of U.S. Patent No. 6,117,245 to Mandrekar et al. (hereinafter Mandrekar et al.). The Examiner has rejected Claims 1, 3-5, 9-11, 14-16, and 20-24 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,802,856 to Schaper et al. (hereinafter Schaper et al.) in view of Mandrekar et al. The Examiner has rejected Claims 12-14, and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Mandrekar et al. and in further view of U.S. Patent Application Publication No. 2003/0164226 to Kanno et al. (hereinafter Kanno et al.). The Examiner has rejected Claims 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Mandrekar et al. and in further view of U.S. Patent No. 4,060,997 to Shultz et al. (hereinafter Shultz et al.).

Turning now to the merits, with respect to the rejection under 35 U.S.C. § 112, second paragraph, Claims 1 and 24 are presently amended to clarify the function of the inlet distribution unit, *viz*,

> an inlet distribution unit that is in fluid communication with the channel of the thermal assembly and the first and second fluid units, the inlet distribution unit being constructed and arranged to ***control*** an amount of the flow rate of the controlled heat transfer fluid returning from the channel of

the thermal assembly and flowing to the first fluid unit and ***control*** a remaining amount of the flow rate of the controlled heat transfer fluid returning from the channel of the thermal assembly and flowing to the second fluid unit [Emphasis Added].

The inlet distribution unit controls the relative amount of controlled heat transfer fluid that returns to each of the first and second fluid units. As an example, the inlet distribution unit may return the flow rate of the controlled heat transfer fluid to each of the fluid units in an amount equivalent to that dispensed by the outlet distribution unit from each fluid unit. Alternatively, as an example, the inlet distribution unit may favor one fluid unit over another fluid unit when returning the flow rate of the controlled heat transfer fluid to each of the fluid units. [among other areas of the present application, see Paragraphs 0038 and 0043]. The amendments to Claims 1 and 24 are believed to alleviate the Examiner's concerns regarding the formation of "a back pressure", as well as the use of "volume control". Accordingly, immediate withdrawal of the rejection of Claims 1-24 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

With respect to the rejection under 35 U.S.C. § 102(b), Claims 1, 3-13, 15-16, 18, and 21-24 are not anticipated by Mitrovic et al. since these claims, as presently amended, recite an apparatus for controlling a temperature of a substrate comprising, *inter alia*,

an outlet flow control unit, including a mixing unit, that is in fluid communication with the channel of the thermal assembly and the first and second fluid units, the outlet flow control unit being constructed and arranged to supply the channel with a flow rate of a controlled heat transfer fluid comprising at least one of the heat-transfer fluid having a first temperature, the heat transfer fluid having a second temperature or a combination thereof;

an inlet distribution unit that is in fluid communication with the channel of the thermal assembly and the first and second fluid units, the inlet distribution unit being constructed and arranged to control an amount of the flow rate of the controlled heat transfer fluid returning from the channel of the thermal assembly and flowing to the first fluid unit and control a remaining amount of the flow rate of the controlled heat transfer fluid returning from the channel of the thermal assembly and flowing to the second fluid unit,

said mixing unit comprising a mixing flow chamber having a mixing flow surface, wherein the heat transfer-fluid having a first temperature and the heat-transfer fluid having a second temperature are mechanically mixed within said mixing flow chamber.

Mitrovic et al. teaches the return of fluid from conduit 18 to fluid sources 50 or 52 [see FIG. 3 in Mitrovic et al.]. However, Mitrovic et al. fails to teach or suggest ***an inlet distribution unit*** that is in fluid communication with the channel of the thermal assembly and the first and second fluid units, the inlet distribution unit being constructed and arranged to ***control*** an amount of the flow rate of the controlled heat transfer fluid returning from the channel of the thermal assembly and flowing to the first fluid unit and ***control*** a remaining amount of the flow rate of the controlled heat transfer fluid returning from the channel of the thermal assembly and flowing to the second fluid unit [Emphasis Added].

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. M.P.E.P. § 2131 (citing Verdegaal Bros. V. Union Oil Co. of California, 814 F.2d 628 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the … claim." M.P.E.P. § 2131 (citing Richardson v. Suzuki Motor Co., 868 F.2d 1226 (Fed. Cir. 1989)). Each and every element in independent Claims 1 and 24 are not expressly taught or suggested by Mitrovic et al.

"To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." M.P.E.P. § 2131 (citing Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)). Even if the Examiner is to suggest that an inlet distribution system that controls the relative amounts of the flow rate of controlled heat transfer fluid to each of the fluid units is inherent in the specification of Mitrovic et al., this missing descriptive matter is not necessarily present in the device described by Mitrovic et al.

Accordingly, at least for these reasons, the Applicant respectfully requests that the Examiner withdraw the rejection of Claims 1 and 24 under 35 U.S.C. § 102(b) as being anticipated by Mitrovic et al. Additionally, since Claims 3-13, 15-16, 18, and 21-23 depend from Claim 1, either directly or indirectly, Claims 3-13, 15-16, 18, and 21-23 are not anticipated by Mitrovic et al. at least by virtue of dependency as well as for their additional recitations. Accordingly, at least for these reasons, the Applicant respectfully requests that the Examiner withdraw the rejection of Claims 3-13, 15-16, 18, and 21-23 under 35 U.S.C. § 102(b) as being anticipated by Mitrovic et al.

MPEP § 2142 states: "The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of non-obviousness." Mitrovic et al. fails to teach each and every element in Claims 1 and 24 including, but not limited to, an inlet distribution unit. Further, the Examiner has failed to explain why the difference between the claimed invention and Mitrovic et al. would have been obvious to one of ordinary skill in the art. Therefore, the Examiner has failed to establish a *prima facie* case for obviousness. MPEP § 2142 further states: "To reach a proper determination under 35 U.S.C. § 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all of the factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate "the subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, ***impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.***" [Emphasis Added] The Examiner has failed to make a proper determination under 35 U.S.C. § 103, and put aside the knowledge of Applicant's disclosure when making a determination.

Accordingly, at least for these reasons, the Applicant respectfully requests that the Examiner withdraw the rejection of Claims 1 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Mitrovic et al. Additionally, since Claims 3-13, 15-16, 18, and 21-23 depend from Claim 1, either directly or indirectly, Claims 3-13, 15-16, 18, and 21-23 are also patentable over Mitrovic et al. at least by virtue of dependency as well as for their additional recitations. Accordingly, at least for these reasons, the Applicant respectfully requests that the Examiner withdraw the rejection of Claims 3-13, 15-16, 18, and 21-23 under 35 U.S.C. § 103(a) as being unpatentable over Mitrovic et al.

With respect to the rejection of Claims 1, 3-13, 15, 18 and 21-24 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Mandrekar et al., Claims 1, 3-13, 15, 18 and 21-24 are patentable over the cited references for the reason that Mandrekar et al. fails to cure the noted deficiencies of Hunter. Hunter describes a temperature control system for semiconductor processing facilities, wherein a three-way valve is used to provide an option of

using fluid from either of two manifolds for distribution of heat transfer fluids at different temperatures to multiple components of multiple process units. Hunter fails to teach or suggest an inlet distribution unit as presently claimed. Further, Hunter fails to teach or suggest a mixing unit, much less a mixing unit comprising a mixing flow chamber having a mixing flow surface, wherein the heat-transfer fluid having a first temperature and the heat-transfer fluid having a second temperature are mechanically mixed within said mixing flow chamber.

Mandrekar et al. provides an apparatus for regulating temperature of a component of a processing chamber. The apparatus comprises a cooling fluid supply 50 and a heating fluid supply 52 configured to provide a cooling fluid and a heating fluid, respectively, to a thermal fluid supply inlet 32 that is coupled to a thermal conductor thermally connected to a component in a processing chamber. However, Mandrekar et al. fails to teach or suggest an inlet distribution unit as presently claimed. The cooling fluid and the heating fluid provided by the cooling fluid supply 50 and the heating fluid supply 52, respectively, are not returned to the cooling fluid supply 50 and the heating fluid supply 52. Rather, the thermal fluid resulting from the supply of cooling fluid and heating fluid from the cooling fluid supply 50 and the heating fluid supply 52, respectively, is pumped out of the system through exhaust port 34 to the thermal fluid exhaust [Column 6, Lines 8-10]. Mandrekar et al. teaches away from an inlet distribution unit as presently claimed.

Since Hunter in view of Mandrekar et al. fails to teach each and every element in currently amended Claims 1 and 24, Applicant respectfully submits that Claims 1 and 24 patentably distinguish over Hunter in view of Mandrekar et al. Additionally, since Claims 3-13, 15, 18 and 21-23 depend from Claim 1, either directly or indirectly, Applicant respectfully submits that Claims 3-13, 15, 18 and 21-23 patentably distinguish over Hunter in view of Mandrekar et al. Accordingly, immediate withdrawal of the prior art rejection of Claims 1, 3-13, 15, 18 and 21-24 is respectfully requested.

With respect to the rejection of Claims 1, 3-5, 9-11, 14-16 and 20-24 under 35 U.S.C. § 103(a) as being unpatentable over Schaper et al. in view of Mandrekar et al., Claims 1, 3-5, 9-11, 14-16 and 20-24 are patentable over the cited references at least for the reasons set forth above and for the reason that Schaper et al. fails to cure the noted deficiencies of Mandrekar et al. Schaper et al. describes a multizone bake/chill thermal cycling module, wherein a substrate is baked and chilled through thermal contact with thermally conductive plates 34, an array of thermoelectric devices (TEDs) 36, and a heat exchanger 38. Schaper et al. fails to

teach or suggest an inlet distribution unit as presently claimed. Further, Schaper et al. fails to teach or suggest a mixing unit, much less a mixing unit comprising a mixing flow chamber having a mixing flow surface, wherein the heat-transfer fluid having a first temperature and the heat-transfer fluid having a second temperature are mechanically mixed within said mixing flow chamber.

Since Schaper et al. in view of Mandrekar et al. fails to teach each and every element in currently amended Claims 1 and 24, Applicant respectfully submits that Claims 1 and 24 patentably distinguish over Schaper et al. in view of Mandrekar et al. Additionally, since Claims 3-5, 9-11, 14-16 and 20-23 depend from Claim 1, either directly or indirectly, Applicant respectfully submits that Claims 3-5, 9-11, 14-16 and 20-23 patentably distinguish over Schaper et al. in view of Mandrekar et al. Accordingly, immediate withdrawal of the prior art rejection of Claims 1, 3-5, 9-11, 14-16 and 20-24 is respectfully requested.

With respect to the rejection of Claims 12-14 and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Mandrekar et al. and in further view of Kanno et al., Claims 12-14 and 17-19 are patentable over the cited references at least for the reasons set forth above and for the reason that Kanno et al. fails to cure the noted deficiencies of Mandrekar et al. and Hunter. Kanno et al. describes the use of temperature adjusting grooves formed in a wafer stage to cool the wafer. Kanno et al. fails to teach or suggest an inlet distribution unit as presently claimed. Further, Kanno et al. fails to teach or suggest a mixing unit, much less a mixing unit comprising a mixing flow chamber having a mixing flow surface, wherein the heat-transfer fluid having a first temperature and the heat-transfer fluid having a second temperature are mechanically mixed within said mixing flow chamber.

Since Hunter in view of Mandrekar et al. and in further view of Kanno et al. fails to teach each and every element in Claims 12-14 and 17-19, Applicant respectfully submits that Claims 12-14 and 17-19 patentably distinguish over Hunter in view of Mandrekar et al. and in further view of Kanno et al. Accordingly, immediate withdrawal of the prior art rejection of Claims 12-14 and 17-19 is respectfully requested.

With respect to the rejection of Claims 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Mandrekar et al. and in further view of Shultz et al., Claims 6-8 are patentable over the cited references at least for the reasons set forth above and for the reason that Shultz et al. fails to cure the noted deficiencies of Mandrekar et al. and Hunter. Shultz et al. describes a water chiller control in which a thermal sensor for a return temperature provides effective thermal control. Shultz et al. fails to teach or suggest an inlet

distribution unit as presently claimed. Further, Shultz et al. fails to teach or suggest a mixing unit, much less a mixing unit comprising a mixing flow chamber having a mixing flow surface, wherein the heat-transfer fluid having a first temperature and the heat-transfer fluid having a second temperature are mechanically mixed within said mixing flow chamber.

Since Hunter in view of Mandrekar et al. and in further view of Shultz et al. fails to teach each and every element in Claims 6-8, Applicant respectfully submits that Claims 6-8 patentably distinguish over Hunter in view of Mandrekar et al. and in further view of Shultz et al. Accordingly, immediate withdrawal of the prior art rejection of Claims 6-8 is respectfully requested.

CONCLUSIONS

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Should the Examiner have any questions or deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Charge Deposit Account

Please charge our Deposit Account No. 50-3451 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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Date: September 23, 2008

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